

ALUMINUM-FREE UNDER BUMP METALLIZATION STRUCTURE

ABSTRACT

An apparatus and method for providing aluminum free under bump metallization stacks in an integrated circuit device is disclosed. Included is the use of vias having substantially non-vertical sidewalls that are formed in a resilient layer, such as benzocyclobutene. In general, semiconductor wafers having a plurality of dice are created, with each die having a plurality of contact pads that are formed on the active surface of the wafer. One or more passivation layers are formed on the active surface and etched appropriately to form vias coupled to the contact pads. At least one resilient layer is then disposed atop the top passivation layer and etched appropriately to form vias aligned with and smaller than the passivation layer vias, such that at least part of the contact pads but no part of the passivation layer is exposed. A plurality of UBM stacks are then formed atop the exposed contact pads and resilient layer, with each UBM stack having a plurality of layers, none of which are aluminum layers. Solder bumps are then formed atop each UBM stack.